

REMARKS

The Examiner has required restriction under 35 U.S.C. § 121 between the following inventions:

Group I: Claims 1-29 and 31-33, drawn to a gypsum board, and classified in class 442, subclass 386; and

Group II: Claim 30, drawn to a process for manufacturing an article, and classified in class 156, subclass 39.

During a telephone conversation dated January 13, 2005, applicant's attorney Robert D. Touslee, the invention of Group I, i.e. claims 1-29 and 31-33, was provisionally elected, without traverse, for further prosecution on the merits. Applicant hereby confirms the election, without traverse, that the invention of Group I, claims 1-29 and 31-33 be further prosecuted on the merits.

In accordance with the Examiner's suggestion, claims 1-7, 29, and 31-33 have been amended for the sake of clarity to delete the word "continuous" from the expression "chopped continuous glass fiber" in each instance. Appreciation is expressed for the Examiner's constructive suggestion in respect to this feature of applicant's claims. Claims 1, 29, and 31-33 have been further amended to more particularly emphasize the patentable distinctions of applicant's contribution to the art. As amended, claims 1, 29, and 31-33 require that the minor portion of the fine staple fibers in the recited mat be composed of glass or mineral fibers. Claim 24 has been amended for the sake of clarity

and to more particularly emphasize the patentable distinctions of applicant's contribution to the art. Amended claim 24 recites a fibrous mat comprising an effective amount of at least one of a flame retardant, a biocide, a fungicide, and mixtures thereof.

Support for the amendment of claims 1-7, 29, 29, and 31-33 is found in the specification; particularly at page 8, lines 17-20; page 9, lines 31-33; and page 11, line 31 to page 12, line 3. Consequently, no new matter has been added.

Claims 8 and 10 have been cancelled without prejudice to expedite prosecution of this application. Claim 30 stands withdrawn from consideration as being directed to a non-elected invention.

Applicant's invention, as recited by remaining claims 1-7, 9, 11-29, and 31-33, as amended, is directed to a nonwoven, fibrous mat comprising a blend of a major portion of chopped glass fibers and a minor portion composed of glass or mineral fine staple fibers, and a gypsum board faced with such a mat. In various embodiments, the gypsum board exhibits a combination of desirable structural and functional features that render it fire resistant and easily painted or otherwise given an aesthetically pleasing finish after installation with a minimum of surface preparation required. The mat has a high permeability, permitting easy extraction of excess water ordinarily present during slurry-based manufacture of gypsum or other hydraulic set board.

Claims 1-7, 24, 29, and 31-33 were rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. In particular, the Examiner has pointed to the limitation of "chopped continuous glass fibers" required by originally presented claims 1-7, 29, and

31-33. As set forth above, claims 1-7, 29, and 31-33 have been amended in accordance with the Examiner's suggestion to delete the word "continuous." It is respectfully submitted that any lack of clarity resulting from the expression "chopped continuous glass fibers" has thereby been obviated.

With respect to claim 24, the Examiner has indicated that the term "effective amounts" used with reference to fine particles of limestone, glass, clay, coloring pigments, biocide, fungicide, intumescent material, or mixtures thereof prevents comparison of claim 24 to the prior art, because it would be unknown what amounts would be considered "effective amounts."

It is established law that a claim reciting "an effective amount" of a substance does not *per se* violate the requirements of 35 USC 112, second paragraph. In particular, a claim employing the expression "an effective amount" of a given substance has been held to satisfy the requirement of 35 USC 112, second paragraph, if a person of ordinary skill would be able to determine from the disclosure, in its entirety, what is an effective amount of the given substance to accomplish a particular recited function. *In re Watson*, 517 F.2d 465, 477, 186 USPQ 11 (C.C.P.A. 1975) and *Ex parte Skuballa et al.*, 12 U.S.P.Q. 2d 1570, 1989 WL 274384. In the present instance, amended claim 24 recites an effective amount of at least one of a flame retardant, a biocide, a fungicide, and mixtures thereof. Applicant respectfully submits that one of ordinary skill would be able to determine what is an effective amount of the foregoing ingredients, particularly in light of the teaching of the present specification that a preferred gypsum board contains sufficient flame resistance to comply with ASTM Standard E84, Class 1 and sufficient

biocide or fungicide to resist fungal growth, as delineated by ASTM Standard D3274. See page 11, line 31 to page 12, line 3 of the specification. It is further submitted that a skilled artisan would recognize the function of the substances “a flame retardant,” “a fungicide,” and “a biocide” as being inherently specified by the nomenclature used.

In view of the amendment of claims 1-7, 24, 29, and 31-33 and the foregoing remarks, it is submitted that the rejection of those claims as being indefinite has been obviated, and that amended claims 1-7, 24, 29, and 31-33 satisfy the statutory requirements of 35 U.S.C. §112, second paragraph, by particularly pointing out and distinctly claiming the subject matter which applicant regards as the invention. For these reasons, it is submitted that basis underlying the Examiner’s rejection of claims 1-7, 24, 29, and 31-33, as amended, has been obviated.

Accordingly, reconsideration of the rejection of claims 1-7, 24, 29, and 31-33 under 35 U.S.C. §112, second paragraph, as being indefinite, is respectfully requested.

Claims 1-15, 17-21, 23, 25, 27, 29, 31, and 33 were rejected under 35 USC 102(b) as being anticipated by US Patent 5,772,846 to Jaffee, which provides a thermoformable nonwoven fibrous mat having properties said to make it particularly suited for a facer on insulating gypsum board. Inasmuch as claims 8 and 10 have been cancelled, this rejection will be discussed with reference to remaining claims 1-7, 9, 11-15, 17-21, 23, 25, 27, 29, 31, and 33, as amended.

Applicant respectfully submits that the gypsum board delineated by amended claims 1-7, 9, 11-15, 17-21, 23, 25, 27, and 29; the fibrous mat recited by amended claim 31; and the hydraulic set board of amended claim 33 are not disclosed by Jaffee. While

Jaffee admittedly discloses, in general terms, a nonwoven fibrous mat for use as a facer on gypsum insulating board, applicant maintains that Jaffee fails to disclose or suggest the particular mat recited by applicant, let alone a gypsum board faced with mat delineated by the foregoing claims, as amended.

With respect to claims 1, 17, 19, 31, and 33, and referencing col. 3, lines 50-60, the Examiner has pointed to Jaffee as teaching a nonwoven fibrous mat comprising a major portion of textile glass fibers and a minor portion of polymer fibers. Clearly, Jaffee does not teach a mat having the particular types of fiber present in the amounts delineated by independent claims 1, 29, 31, and 33, as amended. In particular, applicant respectfully observes that nowhere does Jaffee disclose any species of gypsum board faced with a nonwoven mat comprising a mixture of a major portion composed of chopped glass fibers and a minor portion composed of glass or mineral fine staple fibers. Accordingly, it is submitted that a *prima facie* case of anticipation of applicant's claims 1, 17, 19, 31, and 33 by Jaffee has not been established.

Significantly, the only reference in Jaffee that applicant is able to locate concerning gypsum board faced with a mat comprising plural types of fibers is found at col. 3, lines 50-53, wherein it is suggested that a minor portion of synthetic polymer fibers like PET polyester fibers or other well known thermoplastic fibers be incorporated. Such polymer fibers are clearly distinguished from the glass or mineral fine staple fibers recited by applicant's claims. While glass fibers having an average fiber diameter of 5 microns or less are suggested for use in mat appointed for use in filter media (col. 3, lines 26-29 and 42-46), a minor portion of glass fiber of such diameter is conspicuously absent

from any mat suggested for use as a board facer. As a result, it is further submitted that the disclosure of Jaffee fails to satisfy the test for anticipation established by the Federal Circuit in *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (1984): “Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, *arranged as in the claim.*” (Emphasis added). In the present instance, Jaffee is submitted not to disclose any nonwoven fibrous mat containing a minor portion of staple glass or mineral fibers arranged in the manner delineated by applicant’s claims, i.e., disposed as the facer of a gypsum board.

It is further significant that the Examiner has not pointed to any disclosure or suggestion of any of the beneficial properties afforded by the board and mat of the present invention. As set forth by the specification, preferred embodiments of applicant’s gypsum board provide, *inter alia*, flame resistance (page 11, lines 31-33), high permeability of the mat permitting easy extraction of excess water present in the gypsum slurry during board fabrication (page 8, lines 23-25), and a desirable “hand” permitting easy application of surface finishes (such as paint) to installed board without extensive surface preparation (page 9, lines 1-10 and page 15, lines 7-15). Significantly, Jaffee fails to recognize any of these benefits, which are clearly quite unexpected and surprising.

Moreover, it is submitted that the disclosure of Jaffee would lead a skilled artisan away from belief that such properties would be obtained in mat comprising fibers of diverse sizes. For example, at col. 3, lines 42-47, Jaffee states: “When making a mat to

be used as an air filter media, it is preferred to add a minor portion of glass microfibers having average fiber diameter of 0.4-2 microns to produce a mat having very small windows formed by the randomly arrayed fibers to catch very fine particles.” Similar disclosure is provided at lines 25-30, wherein the provision of fibers below 5 microns in filter media is said “to provide high efficiency filtration for very fine particles, bacteria, etc.” Applicant respectfully maintains that this disclosure would be understood by a person of ordinary skill as being indicative that a mat including microfibers would exhibit reduced permeability for fluid flow, since openings in the fiber web are reduced in size, thereby restricting flow, e.g. flow of the water that must be extracted during formation of a gypsum or other hydraulic set board during a slurry-based process. On the other hand, applicant has surprisingly found that mat including both chopped glass fibers and glass or wool microfibers exhibits sufficient permeability to readily permit the water extraction needed in forming gypsum or other hydraulic set board. See, e.g., page 12, line 29 to page 13, line 10. Accordingly, it is submitted that one of ordinary skill would be led away from using a mat comprising diverse fiber sizes to produce the board of claims 1, 29, and 33, as amended, as well as the board of claims 2-7, 9, 11-15, 17-21, 23, 25, and 27, which depend from claim 1. Applicant’s finding, by itself, and *a fortiori* in combination with the teaching away of Jaffee, is submitted to render the gypsum board recited by claims 1, 29, and 33 patentably unobvious over Jaffee.

As to claims 4 and 6, the Examiner has pointed to col. 3, lines 35-40 of Jaffee as teaching glass fibers having an average diameter from about 9 to 20 microns. While Jaffee discloses a range of 9 to 20 microns and a preferred range of 10 to 16 microns,

applicant maintains that when the Jaffee disclosure is read in its totality, there is a conspicuous absence of any teaching wherein a gypsum board is formed using a mat wherein a major portion of chopped glass fibers and a minor portion of glass or mineral staple fibers is present. Moreover, there is no recognition in Jaffee of benefits such as the improved "hand" of preferred embodiments of the present mat. As indicated hereinabove, mat containing chopped glass fibers in combination with glass microfibers is disclosed in Jaffee only for use as a filtration media, and not for a gypsum board facer mat. Even less is there any disclosure or mat employing the preferred glass fibers recited by claim 6, the fibers having average diameter of $11 \pm 1.5 \mu\text{m}$.

With respect to amended claim 9, applicant respectfully submits that the Examiner has not pointed to any disclosure or suggestion of gypsum board employing a minor portion of glass or mineral wool staple fibers composed of at least one member selected from the group consisting of fibers of glass, mineral wool, slag wool, ceramic, carbon, metal, refractory materials, and mixtures thereof, as recited by claim 9.

As to claims 11-13, applicant maintains that no disclosure or suggestion has been identified in Jaffee of gypsum board employing mat comprising a minor portion of fine staple fibers composed of C-glass (claim 11) or fine glass or mineral wool staple fibers having an average fiber diameter of less than about $3.5 \mu\text{m}$ (claim 12) or $1.9 \mu\text{m}$ (claim 13).

With respect to claim 14, the Examiner has pointed to Jaffee's disclosure at col. 3, lines 53-60. However, applicant respectfully maintains that lines 53-60 must be read in conjunction with col. 3, lines 26-30 and 42-46, which teach the use of glass microfibers

for mat appointed for filter media, not for mat to be used as gypsum board facer. While ¼-inch fiber (6.4 mm) is admittedly disclosed for such filter media applications, fibers ¾ to 1 inch long are said to be preferred, whereas claim 14 of the instant application recites fibers less than about 7 mm as being preferred.

The Examiner has pointed to disclosure of binder at a 20% level at col. 3, lines 5-18, from which it is inferred that Jaffee provides a minor portion of microdenier polymer fibers at a level less than 40% weight. It is submitted that such a value, even if correctly determined, is far from any disclosure or suggestion of the preferred 20-30% level of fine staple fibers delineated by claim 15.

As to claims 18 and 19, the Examiner has pointed to disclosure of a crosslinkable vinyl chloride acrylate copolymer latex at col. 3, lines 60-67 which is subsequently said to be crosslinked (col. 4, lines 14-30). The glass transition temperature range of about 15 to 45°C recited by claim 23 is said to be anticipated by the disclosure of the aforementioned latex having a glass transition temperature of up to 113°F (col. 3, lines 60-68). Applicant respectfully maintains that such disclosure fails to cure the lack of disclosure of the major portion of glass fiber and the minor portion of fine staple fiber delineated by claim 1, which feature is inherited by dependent claims 18, 19, and 23. Any disclosure of a stearylated melamine emulsion acting as a crosslinker (col. 4, lines 30-38), likewise fails to cure the lack of disclosure of the aforementioned features of claim 1, from which claims 20-21 depend indirectly.

The incorporation in the core of applicant's gypsum board of a water repellant agent and reinforcing fiber, which are delineated by claims 25 and 27, respectively, are

said to be anticipated by the incorporation of US Patent 4,647,496 into the Jaffee reference. Applicant respectfully submits that even with the incorporation of the '496 patent, the Jaffee reference lacks any disclosure or suggestion of gypsum board including the particular fibrous mat delineated by claim 1, for at least the reasons set forth hereinabove. Accordingly, it is submitted that such lack of disclosure precludes a finding that claims 25 and 27, which depend from claim 1, are anticipated by Jaffee.

In view of the cancellation of claims 8 and 10, the amendment of claims 1-7, 9, 29, 31, and 33, and the foregoing remarks, it is submitted that claims 1-7, 9, 11-15, 17-21, 23, 25, 27, 29, 31, and 33, as amended, are novel over Jaffee.

Accordingly, reconsideration of the rejection of claims 1-15, 17-21, 23, 25, 27, 29, 31, and 33 under 35 USC 102(b) as being anticipated by Jaffee is respectfully requested.

Claims 1-8, 12-15, 18, 24, 29, and 33 were rejected under 35 USC 102(b) as being anticipated by US Patent 5,389, 716 to Graves, which discloses a binder composition for fibrous mats that is said to be fire resistant when cured. The mats are said to be suitable for a backing layer for gypsum. In view of the cancellation of claim 8, the rejection will be discussed with respect to remaining claims 1-7, 12-15, 18, 24, 29, and 33.

In particular, the Examiner has pointed to disclosure of fibrous mat comprising mineral wool fibers having a diameter between 2 and 6 microns (col. 9, lines 50-60) that may be in part substituted with glass fibers (col. 11, lines 33-37). As noted by the Examiner, Graves discloses (at col. 11, lines 54-60) that the weight ratio of wool to glass fibers may range from about 0:1 to 1:0. That is to say, the Graves mat may comprise exclusively glass fibers or mineral wool, or a combination in any ratio. The Examiner

purports that in one embodiment the mineral wool fibers in the Graves mat can comprise a portion of 1-30 percent of the mat. But significantly, the Examiner has not pointed to disclosure in Graves of any mat species having fiber sizes and amounts falling within the limits set forth by applicant's independent claims 1, 29, and 33, or even any disclosure or suggestion of the desirability of a mat containing 1-30 percent mineral wool fibers. Applicant respectfully notes that the six species provided by Table 1 employ a wool fiber to glass fiber ratio of 90/10 or 80/20, said amounts of wool fiber (80-90%) being far larger than the 1-30 percent delineated by claims 1, 29, and 33. It is well established that disclosure of overlapping ranges by a prior art reference does not *per se* establish anticipation in the absence of any species falling within the claimed range.

Moreover, it is submitted that in the present instance, Graves (like Jaffee) fails to recognize the properties of applicant's claimed mat that render it advantageous for use as a gypsum board facer, including high permeability to permit extraction of water during board fabrication and a smooth surface of the final board product. Such a beneficial combination of properties arises from the use of mat employing particular fibers having the sizes and relative amounts delineated by applicant's claims.

With respect to claim 33, the Examiner has stated that the limitation of "hydraulic set" has not been given any patentable weight because the method of making the gypsum board is not germane to the issue of patentability of the product itself. Applicant respectfully submits that the Examiner has misconstrued the term "hydraulic set" used in the preamble of claim 33, which recites a "hydraulic set board." The Examiner's attention is drawn to the usage of the term "hydraulic set" in the specification. For

example, at page 7, lines 5-10, it is said that “The present invention provides gypsum board and other hydraulic set and cementitious boards having front and back large surfaces, at least one of which is faced with a non-woven, fibrous mat.” At page 14, lines 8-10, applicant states that the invention provides a method for making “gypsum board and other hydraulic set and cementitious board products,” thereby establishing “hydraulic set board” as an article of manufacture. Similar usage is found at page 15, lines 7-8. The term “hydraulic set” is expressly defined at page 7, lines 7-10: “By hydraulic set is meant a material capable of hardening to form a cementitious compound in the presence of water. Typical hydraulic set materials include gypsum, Portland cement, pozzolanic materials, and the like.” Applicant respectfully submits that a class of materials is thereby defined, and that one of ordinary skill would clearly understand the term “hydraulic set board” used in claim 33 as being a construction board employing one or more of the foregoing materials. It is further submitted that in light of the teaching of the specification, particularly as set forth above, one of ordinary skill would not regard the term “hydraulic set” as being a process limitation, but rather a proper structural definition used in reciting the subject matter of claim 33. Accordingly, it is submitted that the term “hydraulic set board” must be given full patentable weight in the examination of claim 33 for patentability.

With reference to claims 2 and 3, Graves is said to teach that the glass fibers can comprise c-glass, t-glass, and e-glass (col. 10, lines 4-15). Such disclosure, however, falls short of defining any species within the limits of claim 1, from which claims 2 and 3 depend. With reference to claims 4 and 6, the Examiner has pointed to disclosure in

Graves that the glass fibers can have a diameter between 3 and 30 microns (col. 10, lines 15-25). Such a range is far broader, however, than the 8 to 17 μm average fiber diameter delineated by claim 1, from which claims 4 and 6 depend. Even less is there any disclosure or suggestion of the narrower, preferred ranges of 10 to 16 μm (claim 4) or $11 \pm 1.5 \mu\text{m}$ (claim 6). With respect to claims 5 and 7, the 1-75 mm fiber length range cited by the examiner (col. 10, lines 15-25) far exceeds the 5 to 30 mm range in claim 5 and 6 to 12 mm range in claim 7, for which ranges there is no disclosure or suggestion in Graves. As to claims 12-13, the Examiner points to the 2-6 micron range disclosed at col. 9, lines 50-60. Significantly, Graves discloses that "larger fibers would perform adequately with this invention." Applicant respectfully submits that such disclosure points away from applicant's preferred ranges of "less than about 3.5 μm " of claim 12 and "less than about 1.9 μm " of claim 13. The Examiner refers to disclosure of a length of fine staple fibers having a length of 6-76 mm (col. 9, lines 50-60), again a range far wider than the "less than about 7 mm" range of claim 14.

As set forth above in connection with the rejection of claims 1, 29, and 33 over Graves, applicant submits that Graves is devoid of any disclosure or suggestion of applicant's feature of 1-30 percent fine staple fiber, let alone the preferred range of 20-30 percent delineated by claim 15.

As to claim 18, the Examiner points to Graves' disclosure of modified urea-aldehyde. As to claim 24, the Examiner points to Graves's disclosure of the formulation of additional ingredients into the latex and/or resin (col. 8, lines 44-50). It is respectfully submitted that the disclosures to which the Examiner refers fail to cure the lack of

disclosure or suggestion of the other features of claim 1, on which claims 18 and 24 depend.

For at least these reasons, and those further set forth above, it is submitted that Graves does not disclose or suggest a gypsum or other hydraulic set board having the outstanding combination of structural and functional properties afforded by the gypsum board recited in present claims 1-8, 12-15, 18, 24, and 29, and the hydraulic set board of claim 33.

Accordingly, reconsideration of the rejection of Claims 1-8, 12-15, 18, 24, 29, and 33 under 35 U.S.C. 102(b) as being anticipated by Graves is respectfully requested.

Claims 28 and 32 were rejected under 35 USC 102(b) as being anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Jaffee.

As set forth hereinabove in connection with the 102(b) rejection of claims 1-15, 17-21, 23, 25, 27, 29, 31, and 33 over Jaffee, it is submitted that Jaffee fails to disclose or suggest any gypsum board faced with a mat comprising a minor portion of glass or mineral fibers, as required by claim 1, from which claim 28 depends, or by claim 32.

Even less is there any disclosure or suggestion of a gypsum board that would exhibit flame resistance sufficient to pass the test of ASTM Method E84, Class 1, as recited by claim 28, or a fibrous mat as recited by claim 32 that would have a permeability of at least about 250 cfm/ft², as measured in accordance with ASTM Standard D237. While the Examiner has admitted that there is no explicit disclosure or suggestion in Jaffee of such flame resistance or permeability, she has asserted that such

properties may be presumed to be inherent and that the burden is upon applicant to prove otherwise under *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (C.C.P.A. 1980) and *In re Best*, 562 F.2d 1252, 195 USPQ 430 (C.C.P.A. 1977)

Applicant respectfully submits that the Examiner's reliance on *Fitzgerald* and *Best* is misplaced, inasmuch as the factual situation required for those cases to be apposite is not satisfied in the present instance. The Examiner further points to footnote 4 of the *Best* decision for the proposition that a rejection may be made alternatively for obviousness under 35 USC 103 or anticipation by inherency under 35 USC 102. However, the *Best* holding, which was affirmed by *Fitzgerald, supra*, was predicated on the substantial identity of the claimed and prior art products. ["Where, as here, the claimed and prior art products are identical or substantially identical... the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product." *Best, supra*, at 1255]. In the present instance, therefore, the gypsum board of claim 28 and the fibrous mat of claim 32 must be substantially identical to the gypsum board and fibrous mat allegedly provided by the Jaffee disclosure for *Fitzgerald* and *Best* to be applicable.

Applicant respectfully traverses any such identification. The Examiner has admitted that Jaffee does not disclose or suggest flame resistance, but instead relies on the presumed inherency of such a feature in the Jaffee gypsum board. As set forth hereinabove in connection with the 102(b) rejection of claim 1 over Jaffee, no gypsum board employing mat comprising both a major portion of chopped glass fibers and a minor portion of glass or mineral wool fibers is disclosed or suggested by Jaffee. As a

result, it is submitted that there are substantial differences between any gypsum board disclosed or suggested by Jaffee and the present board recited by claim 1, on which claim 28 depends, precluding application of *Fitzgerald* or *Best* in respect of claim 28.

Even less is there any warrant for applying the *Fitzgerald* or *Best* to claim 32. In the foregoing discussion in connection with the 102(b) rejection of claims 1-15, 17-21, 23, 25, 27, 29, 31, and 33 over Jaffee, applicant has pointed to teaching in Jaffee that is submitted to point a skilled artisan away from the mat of claim 32. Far from being silent as to permeability, Jaffee discloses that mat having a minor portion of glass microfibers has very small windows that catch very fine particles and provide high efficiency filtration. Applicant thus submits that the finding that a high permeability can be attained in mat comprising fibers of disparate sizes, as delineated by claim 32, as amended, is surprising and unexpected. Such properties are exhibited by exemplary mats of the invention, e.g. as set forth in the Examples of Table IV.

For these reasons, and those set forth above, it is submitted that Jaffee does not disclose or suggest a gypsum board or mat having the outstanding combination of properties afforded by the gypsum board recited by present claim 28 and the mat of claim 32.

Accordingly, reconsideration of the rejection of claims 28 and 32 under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Jaffee is respectfully requested.

Claim 16 was rejected under 35 USC 103(a) as being unpatentable over Jaffee in view of US Patent 6,365,533 to Horner, Jr., et al., which relates to a low fiber, plyable facer suitable for use in insulation board manufacture.

Applicant respectfully disagrees with the Examiner's position that Jaffee teaches the invention recited by claim 16, except for disclosure of a second face comprising kraft paper, as set forth hereinabove in connection with the 102(b) rejection of claims 1-15, 17-21, 23, 25, 27, 29, 31, and 33 over Jaffee. It is respectfully maintained that Horner, Jr., et al. does not cure the aforementioned deficiencies of Jaffee to render obvious the invention of claim 16.

For these reasons, and those set forth above, it is submitted that the combination of Jaffee and Horner, Jr., et al. does not disclose or suggest the gypsum board recited by present claim 16.

Accordingly, reconsideration of the rejection of claim 16 under 35 U.S.C. 103(a) as being obvious over the combination of Jaffee and Horner, Jr., et al. is respectfully requested.

Claim 22 was rejected under 35 USC 103(a) as being unpatentable over Jaffee in view of US Patent 5,514,744 to Brown, which discloses a combined alumina, cement, and gypsum product comprising 100 parts by weight of alumina cement, 10 to 100 parts by weight of an aqueous polymer precursor emulsion, and 15 to 600 parts by weight of a hemi-hydrate gypsum. The product may be used to form a plastering mix that may be applied, e.g. to a wall.

The Examiner has alleged that Jaffee teaches the claimed invention, but has acknowledged that Jaffee fails to teach a cross-linker comprising melamine formaldehyde. Brown is said to teach that a polymer binder can comprise a plasticizer to enhance its workability (col. 3, lines 24-25); which plasticizer can comprise melamine formaldehyde. While Brown admittedly refers to a melamine formaldehyde (col. 3, lines 24-26) plasticizer, the disclosed polymer binder is not used in connection with any nonwoven fibrous mat. Importantly, Brown does not disclose a fibrous reinforcing mat used as a gypsum board facer whatsoever. Instead, the polymer binder of Brown is used to reinforce the bulk of a cementitious mixture comprising alumina, cement, and gypsum. Any glass fiber, if present at all, is dispersed within a cementitious matrix. It is respectfully submitted that one of ordinary skill in the art of fibrous mats would not find motivation in the Brown reference to use melamine formaldehyde as a plasticizer for polymer used in fabrication of non-woven glass fiber mats. More specifically, there is no disclosure or suggestion in Brown of the efficacy of melamine formaldehyde as a cross-linker to enhance the particular properties required for polymer used to bind chopped glass and fine staple fibers of the specific types and in the amounts used in the mat recited by applicant's claim 1, from which claim 22 indirectly depends. Accordingly, it is submitted that Brown fails to disclose or suggest the subject matter of claim 22, and further that one of ordinary skill in the art would not be motivated to combine the Brown and Jaffee references as proposed by the Examiner.

For these reasons, and those set forth above, it is submitted that the combination of Jaffee and Brown does not disclose or suggest the gypsum board recited by present claim 22.

Accordingly, reconsideration of the rejection of claim 22 under 35 U.S.C. 103(a) as being obvious over the combination of Jaffee and Brown is respectfully requested.

Claim 26 was rejected under 35 USC 103(a) as being unpatentable over Jaffee in view of US Patent Publication US 2004/0209071 to Carbo et al., which discloses acoustical tiles, also known as acoustical panels, ceiling tiles, or ceiling panels, that are said to inhibit the growth of fungus, bacterial and other micro-organism.

More specifically, Carbo et al. is said to teach the provision of a biocide protecting the core of a panel, such as zinc pyrithione present in at least one of the panel core and a coating applied to at least one of the surfaces of the core. While the Examiner has asserted that Jaffee teaches the claimed invention except for a biocide contained in the core, applicant respectfully disagrees, for at least the reasons set forth hereinabove in connection with the 102(b) rejection of claims 1-15, 17-21, 23, 25, 27, 29, 31, and 33 over Jaffee. Applicant further maintains that Carbo et al. fails to cure the lack of disclosure or suggestion of a gypsum board employing the nonwoven mat facers delineated by claim 1, from which claim 26 depends.


As a result, it is submitted that the combination of Jaffee and Carbo et al. does not disclose or suggest a gypsum board having the outstanding combination of properties afforded by the board recited by present claim 26.

Accordingly, reconsideration of the rejection of claim 26 under 35 U.S.C. 103(a) as being obvious over the combination of Jaffee and Carbo et al. is respectfully requested.

In view of the cancellation of claims 8 and 10, the amendment to claims 1-7, 9, 24, 29, and 31-33, and the foregoing remarks, it is respectfully submitted that the present application has been placed in allowable condition. Reconsideration of the rejection of claims 1-29 and 31-33 and allowance of the present application, as delineated by amended claims 1-7, 9, 11-29, and 31-33, are, therefore, earnestly solicited.

Respectfully submitted,

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